

Public Review Comment Metric

Originating Office: AIR-130	Document Description: AC 20-182A, Airworthiness Approval for Aircraft Weather Radar Systems	Project Lead/Reviewer	Reviewing Office:	Date of Review: July 2016
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	Commenter	Section # and Page #	Comment	Suggested Change and Rationale	Disposition
1.	Embraer	Section 6.5.4, page 5	<p>In the proposed revision “A” of AC 20-182, the following text has been added: <i>“To accommodate icons (or groups of icons) with wide azimuth extent, it is permissible to limit the width between the radial lines. As such, the radial lines may extend along azimuth lines that are inside the left and right radial boundaries of the icon(s).”</i></p> <p>However, one might find some difficulty on picturing the exact meaning of this text without any illustrations, to follow it.</p>	<p>It is suggested to add some illustrations, just like the ones presented in Figure 1 of the Appendix A, to clarify the meaning of this text. With these pictures, the added text could be changed to: <i>“To accommodate icons (or groups of icons) with wide azimuth extent, it is permissible to limit the width between the radial lines. As such, the radial lines may extend along azimuth lines that are inside the left and right radial boundaries of the icon(s) (refer to Figure XX).”</i></p>	<p>Accepted.</p> <p>Changed the commented text to: <i>“To accommodate icons (or groups of icons) with wide azimuth extent, it is permissible to limit the width between the radial lines. As such, the radial lines may extend along azimuth lines that are inside the left and right radial boundaries of the icon(s) (refer to Figure 2).”</i></p> <p>See Figure 2. Examples of Windshear Icon Radial Lines at the end of the comment matrix.</p>
	Embraer	Appendix A, Table 1, page A-1	<p>It should be clearly indicated that the visual textual and aural alerts in Table 1 are examples only. Embraer understands that, in accordance with FAA AC 25.1322-1, alerts should be designed to be consistent with the flightcrew-alerting philosophy and the overall flight-deck philosophy.</p>	<p>It is suggested to add the following note, following Table 1: <i>“Note 3: Table 1 provides examples of visual textual and aural alerts. Other visual textual and aural alerts may be used provided that they meet the applicable requirements. These examples do not replace the need to design these alerts to be consistent with the specific system and airplane design and the overall flight-deck philosophy.”</i></p>	<p>Accepted.</p> <p>The forward-looking windshear visual textual and aural alerts in Table 1 of Appendix A should be met. These visual textual and aural alerts follow flight deck alerting philosophy for aircraft and adhere to both the regulation and the guidance in FAA AC 25.1322-1.</p> <p>If an applicant proposes deviation from the visual textual and aural alerts in Table 1, the applicant should propose an alternate means</p>

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					of compliance (AMOC).
2.	Garmin	General	<p>The use of “must” within this draft AC is not based on a clear regulatory requirements.</p> <p>FAA Order 1320.46D, <i>FAA Advisory Circular System</i>, is applicable to “...anyone who prepares and issues ACs” (ref. Chapter 1 paragraph 2). Order 1320.46D Chapter 3 paragraph 7.f states:</p> <p>“f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.”</p> <p>The Office of Management and Budget (OMB), <i>Bulletin for Agency Good Guidance Practices</i> (72 FR 3432), Section II.2.g and II.2.h further clarify that (<u>emphasis</u> added; <i>italics</i> in original):</p> <p>“2. <i>Standard Elements</i>: Each significant guidance document shall:</p> <p>... g. Include the citation to the statutory provision or regulation (in Code of Federal Regulations format) which it applies to or interprets; and h. <u>Not include mandatory language such as “shall,” “must,” “required” or “requirement,” unless the agency is using</u></p>	<p>In accordance with OMB <i>Good Guidance Practices</i>(GGP) Section II.2.g and Order 1320.46D Chapter 3 paragraph 10.a, which states:</p> <p>“a. Place references in the text where they will be most useful”</p> <p>It is suggested to include all regulatory requirement references where the AC is using “must” to convey a regulatory requirement. Such references will enable the reader to connect the appropriate regulatory requirement and to indicate the basis for the AC using the verb “must”.</p> <p>In accordance with OMB GGP Section II.2.h, if a clear regulatory requirement cannot be referenced, change “must” to “should”.</p> <p>Example paragraphs where the regulatory basis for using the word “must” is not readily apparent include but are not necessarily limited to (<u>emphasis</u> added):</p> <ul style="list-style-type: none"> 5.4: “You <u>must</u> ensure the weather radar system does not adversely affect the functioning of, and is not adversely affected by, other aircraft systems. 5.6: “You <u>must</u> document any areas where radar emissions could be harmful to people or wildlife.” 6.1.1: “To allow timely takeoff abort due to 	<p>Accepted.</p> <p>Paragraph 5.4 convey the regulatory requirement of §§23/29.1431(b) and 25.1431(c): Radio and electronic equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other radio or electronic unit, or system of units, required by this chapter.</p> <p>No change made to paragraph 5.4.</p> <p>Changed paragraph 5.6 to: “You should document any areas where radar emissions could be harmful to people or wildlife.”</p> <p>Changed paragraph 6.1.1 to: “To allow timely takeoff abort due to windshear condition, you should ensure the forward-looking windshear function is capable of manual activation prior to the start of the takeoff roll.”</p> <p>Changed paragraph 6.2.1 to: “You must ensure the alerts and</p>

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			<p><u>these words to describe a statutory or regulatory requirement, ...</u></p> <p>(Note: These OMB <i>Bulletin for Agency Good Guidance Practices</i> principles are acknowledged by FAA Order 8100.16 Chapter 2 paragraphs 2-2 and 2-2.c and FAA Order FS 8000.96 Chapter 2 paragraph 2.4.)</p>	<p>windshear condition, you <u>must</u> ensure the forward-looking windshear function is capable of manual activation prior to the start of the takeoff roll.</p> <p>On the contrary, paragraph 6.2.1 appears to have a clear regulatory basis, referencing 14 CFR § 25.1322, but uses the term “should” (<u>emphasis</u> added).</p> <ul style="list-style-type: none"> 6.2.1: “You <u>should</u> ensure the alerts and annunciations follow flight deck alerting philosophy for aircraft and adhere to both the regulation and the guidance in the latest revision of the following ACs for parts 23 and 25 aircraft: 6.2.1.1 14 CFR § 25.1322, <i>Flight Crew Alerting.</i>” 	annunciations follow flight deck alerting philosophy for aircraft and adhere to both the regulation and the guidance in the latest revision of the following ACs for parts 23 and 25 aircraft: ”
3.	Garmin	Section 1.2, Page 1	<p>Includes the following:</p> <p>“This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, of accomplishing airworthiness approval for the installation of airborne weather radar equipment. However, if you use the means described in this AC, you must follow it entirely.”</p> <p>This statement is not consistent with the standard text specified in FAA Order 1320.46D Chapter 3 paragraph 6.a.(2). FAA Order 1320.46D, <i>FAA Advisory</i></p>	<p>For consistency with FAA Order 1320.46D, suggest revising to:</p> <p>“This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, of accomplishing airworthiness approval for the installation of airborne weather radar equipment. However, if you use the means described in the AC, you must follow it in all important respects.”</p>	<p>Accepted.</p> <p>Made change as suggested.</p>

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			<p><i>Circular System</i>, is applicable to “...anyone who prepares and issues ACs” (ref. Chapter 1 paragraph 2).</p> <p>Furthermore, the last sentence is overly restrictive, especially since the first sentence states that the AC is not mandatory and is not a regulation.</p>		
4.	Garmin	Section 6.1.4, Page 4	<p>Includes the following:</p> <p>“You must ensure the forward-looking windshear detection system is reset to the appropriate mode (landing or takeoff) in the event of a go-around or touch and go.”</p> <p>Although this is consistent with RTCA DO-220A, the installer cannot verify this at a systems level. The only difference between landing and takeoff mode for windshear is an extension of the Warning alert region (from 1.5 to 3 nm). The current windshear mode (landing vs takeoff) is not annunciated to the pilot. The appropriate alert level (based on landing vs takeoff) is simply handled internally and tested per RTCA DO-220A.</p>	Remove section 6.1.4 as it is not testable by the installer and is handled per RTCA DO-220A.	<p>Partially Accepted.</p> <p>It is true that testing the windshear mode addressed in section 6.1.4 is covered by the proposed TSO-C63e and RTCA/DO-220A, but it may also be good to confirm this safety critical windshear mode for the installation. It is testable on the aircraft, because per Table 1 proposed TSO-C63e the aural for a warning alert is different for takeoff vs. approach.</p> <p>Changed to: “The forward-looking windshear detection system may be reset to the appropriate mode (landing or takeoff) in the event of a go-around or touch and go.”</p>
5.	Garmin	Section 11.1, Page 9	<p>Includes the following:</p> <p>“Incorporate the following information into the ICA:”</p>	<p>To be consistent with the paragraph 10 guidance for AFM(S) content, suggest changing to:</p> <p>“You should incorporate the following information into</p>	<p>Accepted.</p> <p>Made change as suggested.</p>

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			While 14 CFR 21.50(b) requires an ICA, the content of the ICA is not required by regulation. The quoted statement implies that the “following information” <u>must</u> be included in the ICA when such information may vary by radar equipment and installation.	the ICA.”	
6.	Honeywell	7.1, pg 6	The listed title of DO-220A does not match the actual title. Please change as shown to the right.	RTCA/DO-220A, Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar Systems.	Accepted. Made change as suggested.
7.	Honeywell	B.2.1, pg B-1	The listed title of DO-220A does not match the actual title. Please change as shown to the right.	RTCA/DO-220A, Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar Systems.	Accepted. Made change as suggested.

Figure 2. Examples of Windshear Icon Radial Lines

